

## CLAIMS

What is claimed is:

1. A fitting member for connecting a coaxial cable having an electrically conductive member to a second electrically conductive member, comprising:
  - a. a connector body having a first end, an opposite second end, a cylindrical body defined between the first end and the second end, and an annular recess formed on an outer surface of the cylindrical body proximate to the second end;
  - b. an outer tube having a first end and an opposite second end defining a body therebetween and a clamp head inwardly projecting away from the first end, wherein the body has an outer diameter,  $d_1$ , and is sized to fit into the first end of the connector body by the second end of the outer tube;
  - c. an inner tube having a neck portion, a first shoulder extending from the neck portion, a second shoulder extending from the first shoulder and a sleeve extending from the second shoulder defining a tube body, wherein the second shoulder has a diameter sized to engage with the clamp head of the outer tube, and the first shoulder has a diameter greater than the diameter of the second shoulder so as to form a first step at the junction of the first shoulder and the second shoulder for limiting the axial motion of the clamp head, and the tube body has an inner diameter,  $d_0$ , and is sized to receive a free end of the electrically conductive member of the coaxial cable therethrough; and
  - d. a sleeve tube insertable into the connector body for holding the coaxial cable.
2. The fitting member of claim 1, further comprising a connector head having a neck portion, a body extending from the neck portion, and a clamp ring inwardly projecting away from an inner surface of the body at a predetermined position, wherein the clamp ring is sized to fit to the first shoulder of the inner tube such that the connector head is rotatable around an axis of the inner tube.
3. The fitting member of claim 2, wherein the exterior of the body is formed with a plurality of hexagonal surfaces.

4. The fitting member of claim 1, further comprising a first sealing member and a second sealing member, wherein the first sealing member is positioned therebetween the neck portion of the inner tube and an inner surface of the body of the connector head, and the second sealing member is positioned therebetween the first shoulder of the inner tube and an inner surface of the body of the connector head, respectively.
5. The fitting member of claim 4, wherein the second sealing member is further positioned therebetween the first end of the outer tube and the clamp ring of the connector head.
6. The fitting member of claim 4, wherein each of the first sealing member and the second sealing member comprises an O-ring.
7. The fitting member of claim 1, wherein the connector body has an inner conical portion proximate to the second end and extending toward to the second end from a first diameter at least as great as the outer diameter,  $d_1$ , of the outer tube to a second diameter,  $d_2$ , less than the outer diameter,  $d_1$ , of the outer tube, the second diameter  $d_2$  substantially corresponding to an outer diameter of the coaxial cable.
8. The fitting member of claim 1, wherein the inner tube further comprises a flange outwardly projecting away from the junction of the neck portion and the first shoulder, the flange having a diameter greater than either of the diameter of the first shoulder and a diameter of the neck portion so as to form a second step at the junction of the first shoulder and the flange for limiting the axial motion of the clamp ring of the connector head, and a third step at the junction of the flange and the neck portion for partially receiving the first sealing member.
9. The fitting member of claim 1, wherein the sleeve tube comprises a sleeve body, a sleeve tip and a plurality of annular serrations sequentially formed on an inner surface thereof.

10. The fitting member of claim 9, wherein the sleeve tube is made of plastic.
11. A fitting member for connecting a coaxial cable having an electrically conductive member to a second electrically conductive member, comprising:
  - a. a connector body having a first end, an opposite second end, a cylindrical body defined between the first end and the second end, and an annular groove formed on an inner surface of the cylindrical body and proximate to the first end;
  - b. an outer tube having a cylindrical body, wherein the cylindrical body has an inner diameter sized to receive a free end of the coaxial cable therein and an outer diameter,  $D_1$ , and is sized to fit into the interior space defined by the cylindrical body of the connector body, a neck portion extending from the cylindrical body, and an annular bulge outwardly projecting away from an outer surface of the cylindrical body at a predetermined position such that when the outer tube is inserted into the connector body from the first end, the bulge is received in and engaged with the groove of the connector body so as to limit the relative axial motion of the connector body and the outer tube; and
  - c. a sleeve tube insertable into the connector body for holding the coaxial cable.
12. The fitting member of claim 11, further comprising an inner tube having a clamp head, a shoulder extending from the clamp head and a sleeve extending from the shoulder forming a tube body for receiving a free end of the electrically conductive member of the coaxial cable therethrough, wherein the shoulder has a diameter substantially corresponding to an inner diameter of the neck portion of the outer tube so as to engage with the neck portion when the inner tube is inserted into the outer tube.

13. The fitting member of claim 11, further comprising a connector head having a neck portion, a body extending from the neck portion, and a clamp ring extending from the body, wherein the clamp ring has a diameter less than an inner diameter of the body and is sized to fit to the neck portion of the outer tube such that the connector head is rotatable around an axis of the outer tube.
14. The fitting member of claim 13, wherein the exterior of the body is formed with a plurality of hexagonal surfaces.
15. The fitting member of claim 11, further comprising a sealing member positioned on the clamp head of the inner tube.
16. The fitting member of claim 15, wherein the sealing member comprises an O-ring.
17. The fitting member of claim 11, wherein the connector body comprises an inner conical portion proximate to the second end and extending toward to the second end from a first diameter at least as great as the outer diameter,  $D_1$ , of the outer tube to a second diameter,  $D_2$ , less than the outer diameter,  $D_1$ , of the outer tube, the second diameter  $D_2$  substantially corresponding to an outer diameter of the coaxial cable.
18. The fitting member of claim 11, wherein the sleeve tube comprises a sleeve body, a sleeve tip and a plurality of annular bulges sequentially formed on an inner surface thereof.
19. The fitting member of claim 18, wherein the sleeve tube is made of plastic.

20. A fitting member for connecting a coaxial cable having an electrically conductive member to a second electrically conductive member, comprising:
- a. a connector body;
  - b. an outer tube mounted to the connector body;
  - c. an inner tube having a tube body for receiving a free end of the electrically conductive member of the coaxial cable therethrough, wherein the tube body comprises a neck portion, a flange extending from the neck portion, a first shoulder extending from the flange, a second shoulder extending from the first shoulder for engaging with the outer tube, a first step formed at the junction of the second shoulder and the first shoulder so as to limit the axial motion of the outer tube, a second step formed at the junction of the first shoulder and the flange, and a third step formed at the junction of flange and the neck portion; and
  - d. a sleeve tube insertable into the connector body for holding the coaxial cable.
21. The fitting member of claim 20, further comprising a sealing member that is at least partially received by the third step and the neck portion.